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DESTROY BARBERRY BUSHES

TO CONTROL STEM RUST

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE • U.S. DEPARTMENT OF AGRICULTURE
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DESTROY BARBERRY BUSHES

TO CONTROL STEM RUST

Barberry bushes spread stem rust, a destructive disease that attacks wheat, oats, barley, and rye. Stem rust takes food and moisture from these crops, reducing their yield and quality.

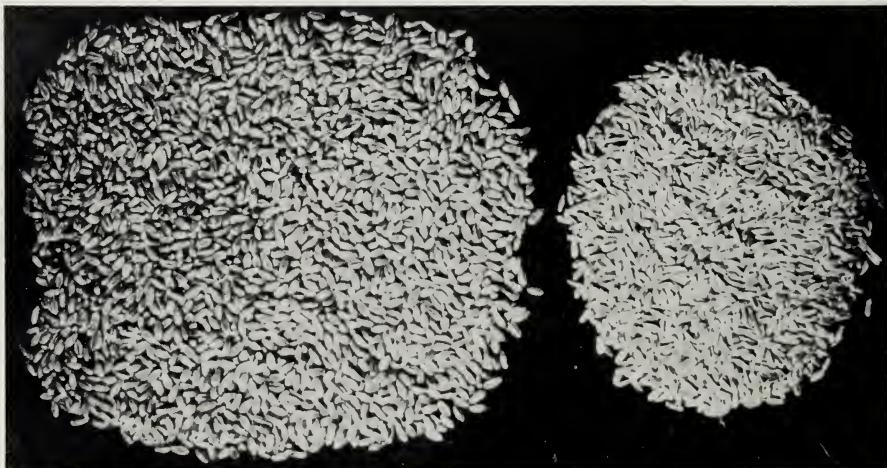
Susceptible barberry bushes serve as a vital link in the reproduction of stem rust fungus in the northern grain-growing areas. These bushes must be destroyed.

A cooperative Federal-State barberry eradication program has progressively decreased the losses from stem rust, but some damage to small grains occurs every year.

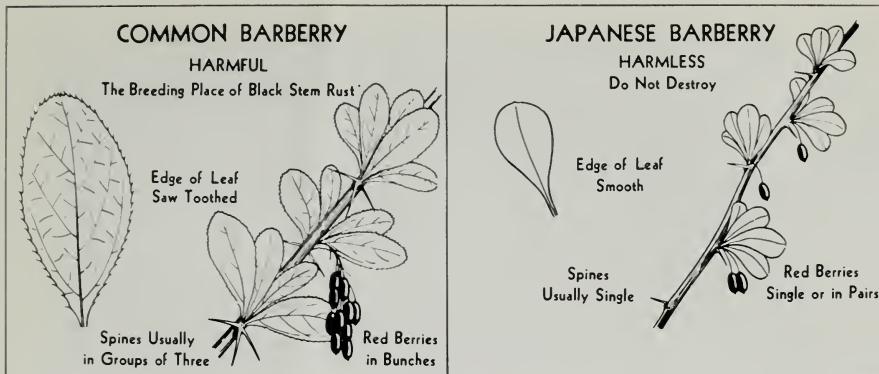
BACKGROUND

Most species of rust-spreading barberry bushes are not native to this country; they were brought here by colonists from Europe. Birds, feeding on the abundant, bright red berries, scattered the seed, and wild bushes began to appear along fences and creeks, in wood-lots and other uncultivated places. As the bushes became numerous, the stem rust disease became more common and damaging.

Early farmers noticed that rust damage was always most severe near the barberry bushes. They suspected the



Left: Plump grains from 100 heads of rust-free wheat. Right: shriveled grains from 100 heads of rusted wheat.



barberries were responsible, but they did not understand how the damage was caused. Nevertheless, in the 1700's, three States passed laws condemning the rust-spreading barberry.

RUST LIFE CYCLE

In the northern part of the United States, the stem rust fungus overwinters on grain straw and stubble in the black stage. In the spring, this stage produces spores that do not reinfect grains and grasses, but do infect susceptible barberry bushes.

On the barberry leaf, the rust undergoes a form of sexual reproduction that allows it to produce different variations or races. Different races attack different varieties of grain. Occasionally, new races of the disease are produced that can attack varieties of grain previously considered to be resistant.

From the barberry, stem rust spreads to small grains where it produces the red stage. Infectious spores from this stage are then carried by winds and air currents from plant to plant and grainfield to grainfield throughout the growing season. As the infected grains and grasses mature, black or overwinter-

ing spores develop, completing the life cycle of stem rust disease in the North.

In the South, the rust may overwinter in the red stage and be carried northward by the wind as the growing season advances. However, in most years, rust from southern grainfields spreads North too late to cause serious damage.

IDENTIFYING COMMON BARBERRY

There are several species of susceptible barberries in this country including the Colorado and Allegheny species which are native.

The European, or common, barberry is the most widespread, and therefore causes the most damage. It is a woody shrub that usually grows about 4 to 5 feet high, but may grow as tall as 12 feet.

The bark of the stem is gray. The inner wood of the stem and the roots of the plant are bright yellow. Leaves—green or purple—grow in clusters, are round-tipped, and have saw-toothed edges. Long spines, in groups of three or more, grow on the branch just below the leaves. The flowers are small and



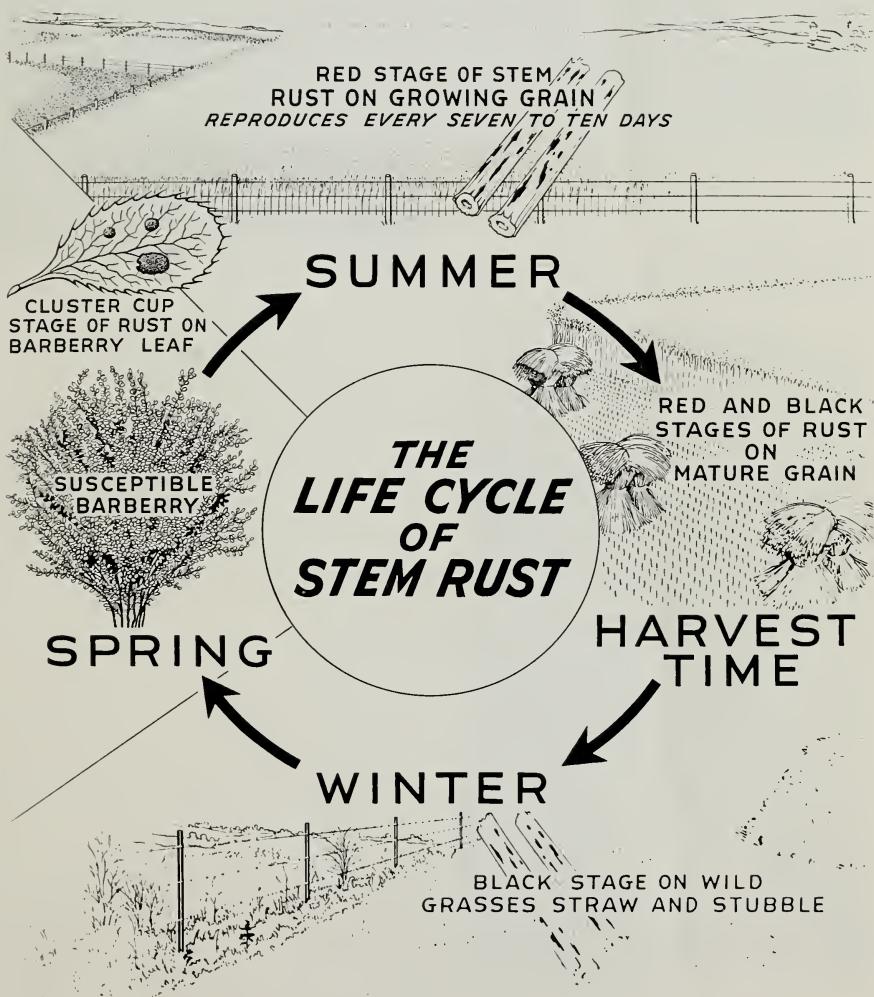
yellow; the berries are bright red and hang in clusters (see cover).

Many varieties of barberry do not spread rust. Japanese barberry is a popular ornamental variety that may be grown with safety. Its bark is reddish and its leaves, green or red, are smooth-edged. Spines and red berries usually grow singly. It is easy to distinguish this variety from the harmful common barberry.

ERADICATION PROGRAM

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service is cooperating with State and local agencies in 19 States to eradicate rust-spreading barberry bushes. Work under the program consists of surveys, eradication, and quarantines on more than a million square miles of land.

Eradication areas are surveyed for susceptible barberry bushes. Any bushes



found are destroyed. The areas are then reinspected at 5- to 7-year intervals. If no bushes are found for a period of 15 years, an area is considered barberry free. It is then placed under a "maintenance program," consisting of informal, periodic inspections.

More than 97 percent of the original eradication area is now on a maintenance program.

Practically all of the remaining area to be inspected is rough; it has a heavy brush cover. Such territory is not only difficult to inspect, but is also favorable for barberry regrowth. Small bushes are hard to find, and inspection is slow and tedious.

A black stem rust quarantine (Federal Domestic Quarantine No. 38) prohibits interstate movement of rust-susceptible barberry plants and seeds. The eradication States also have laws that



Stem rust infection on grain stems.



Stem rust on barberry leaf

prohibit growing or moving rust-spreading barberries.

Rust-resistant barberry plants or seed may be moved interstate only if they are accompanied by an appropriate certificate or permit. Nurseries that sell barberries are inspected periodically to prevent the distribution of rust-spreading plants.

WHAT YOU CAN DO

- Grow recommended rust-resistant varieties of grain.
- Plant spring grains early and use early-maturing varieties. These often escape serious rust damage.
- Report rust-infected fields and any bushes that you suspect are rust-spreading barberry to your county agricultural agent or to your local, State, or Federal plant protection inspector.



Barberry bush growing along fence.

A USDA motion picture, "Stem Rust", is available. Contact your State university film library or write to the Motion Picture Service, Office of Communication, U.S. Department of Agriculture, Washington, D.C. 20250.

Plant Protection and Quarantine Programs

Washington, D.C.

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